

U.S. PATENT APPLICATION

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Invention: A METHOD FOR ORGANIZING FINANCIAL INSTRUMENTS IN A CSD-SYSTEM

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SPECIFICATION

TITLE

A method for organizing financial instruments in a CSD-system.

TECHNICAL FIELD

- 5 The present application relates to a method for use in a so-called Central Securities Depository, commonly abbreviated as CSD, by means of which method financial instruments can be organized in the CSD-system. The invention also discloses a computerized system for carrying out the method.

10 BACKGROUND ART

- Traditionally, centralized institutions have been used mainly for storing gold, which belongs to different nations in one and the same location. When transferring assets from one nation to another, all that needs to be done is to simply transfer gold from the "pile" which belongs to the paying nation to the "pile" which belongs to the
15 nation that is to receive the payment.

- As can be realized, the use of the principles of centralized institutions greatly facilitates the processing of payments, and for this reason there has arisen an interest for using such centralized solutions for other commodities than gold, in principle for
20 any kind of commodity or instrument that can be imagined in the financial market, e.g. bonds, shares, etc.

- Thus, in such an "expanded" centralized system, there would be a plethora of instruments. The gathering of all instruments in one place (physical or virtual)
25 facilitates for those using the system, e.g. issuers, investors, and not least, the operator of the system. Such a system could be referred to as a Centralized Securities Depository, abbreviated as CSD.

- Each kind of financial instrument that would be comprised in such a system would
30 be defined by so called attributes, which are more or less specific for each individual instrument. According to contemporary solutions and systems, the attributes for each individual instrument comprised in a system are "hard coded". Due to, inter alia, the

vast amount of instruments which the system needs to be able to handle, this (the “hard coding”) would make the system difficult and cumbersome to handle, for example due to the fact that new financial instruments can appear in existing markets, or when it is desired to adapt the system to new markets, or exchange
5 information between the markets.

DISCLOSURE OF THE INVENTION

There is thus a need for a method by means of which new instruments can be added in an easy manner to an existing CSD-type system. The method should also facilitate
10 making amendments to existing instruments in the system.

This need is met by the present invention in that the invention discloses a method for organizing financial instruments in a CSD-system in which system the instruments can be traded with, according to which method attributes are assigned to the
15 instruments. Said attributes define the instruments, and according to the method the instruments are organized in a hierarchic multi-level structure as follows:

- a link is created between a first instrument on a first level in the hierarchy and instruments on a second, lower level in the hierarchy,
- the link between the instruments on the first and second levels of the hierarchy is
20 defined by the fact that all of the attributes which are comprised in the instruments on the second level are also comprised in the instrument on the first level to which the instruments on the second level is linked.

Preferably, according to the method of the invention, each instrument is only linked
25 to one other instrument on a level above it. Also, suitably according to the method, any amendment to an attribute in an instrument will cause the same amendment in the same attribute of those instruments which are linked to the amended instruments and which are on lower levels in the hierarchy than the amended instrument.

30 Thus, by means of the method according to invention, amendments to existing instruments is greatly facilitated, since amendments need only be made on the

highest level common to the instruments which are to be amended, and the amendment will then “trickle down” to the instruments in question.

5 The invention greatly facilitates the adding of new instruments to the system. When there is a need or desire to add a new instrument to the system, all that needs to be done is to find an existing instrument in the CSD-system which has at least all of the attributes of the instrument which is to be added. The new instrument is then placed on a level in the hierarchy of the system which is below said existing instrument, and a link is created between the instrument to be added and the existing instrument.

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The invention also relates to a computerized CSD-system, which comprises a register of instruments, said register being organized along the principles of the invention as described above.

15 BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in more detail in the following, with reference to the appended drawings, in which

Fig 1 shows one of the principles behind the invention, and

Fig 2 shows another principle of the method according to the invention, and

20 Fig 3 shows an example of the method according to the invention, and

Figs 4 and 5 show flowcharts of parts of the invention.

EMBODIMENTS

25 As stated above, the invention intends to meet the needs in a CSD-system in which system various financial instruments are traded with. The instruments are defined by so called attributes. Examples of attributes could for example be the identity of the issuer of the instrument in question, the ISIN code or some other code which identifies the instrument, e.g. CUSIP, the date of issue of the security, the interest rate etc.

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It has been described previously in this text which the main needs are that the invention is intended to address. However, in addition to those needs and desires, the

invention should preferably also provide good solutions to the following situations relating to instruments comprised in the register of a CSD-like system:

- re-using different attributes between different instruments
- deriving one instrument from another instrument

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The invention proposes the creation of a multi-level hierarchical system for organizing a register of financial instruments in a CSD-system. In the system according to the invention, there will thus be a number of different levels, with said number preferably not being restricted by an upper limit.

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With reference to Fig 1, one of the principles of a multi-level hierarchy according to the invention will now be explained: in fig 1, a group of instruments are shown, said instruments being arranged in a multi-level hierarchy, where instruments on a higher level (AB) can have links to several instruments on the lower levels (ABBB, ABCC), but each instrument can preferably only have one link to the level above its own.

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The instruments (AB) at the top level of the hierarchy are suitably not instruments which can be traded with as such, but rather generic “templates” for the instruments on the lower levels (ABBB, ABCC;ABBB123, ABCC456) which instruments are “real” instruments that can be traded with, such as e.g. government bonds or mortgage backed securities and shares.

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Thus, a template in a system organized according to the invention can either serve as a template for a template on the next level, or as a template for an instrument on the next level.

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It should be pointed out there that although fig 1 only shows one group of instruments, the system according to the invention can comprise a virtually unlimited number of such groups.

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As can be seen from the group shown in fig 1, one of the principles behind the invention is that any instrument on any level of the system “inherits” all of the

attributes of the instrument to which it is linked on the level immediately above it. This principle could in fact be said to essentially be the definition of the links between the instruments.

- 5 Thus, due to this principle of linkage, when there is a need or a desire for making amendments to one or more instruments, all that needs to be done is to locate, within the hierarchy, the attribute which is to be changed. When the attribute is amended, that particular amendment will “trickle down” to the instruments involved.

- 10 When organizing the group in fig 1, the following steps could be used:
 - Look at the real instruments (ABBB123, ABBB862, ABBB293; ABCC456, ABCC578, ABCC394) which are to be comprised in the register of the CSD-system.
 - Find a first set of common denominators (ABBB, ABCC) between the
 - 15 instruments.
 - Find a second set of common denominators (AB) between the first set of common denominators.
 - When all (or a preset number) of common denominators have been found, create a linked multi-level hierarchy according to the principles outlined above, with the
 - 20 instrument of the most basic common denominator at the highest level, and the real instruments at the lower levels.

The steps described above are also outlined in the accompanying flowchart in fig 4.

- 25 If, at a later stage, a new instrument needs to be added to the register, the following steps could be used:
 - find an existing instrument in the CSD-system which has at least all of the attributes of the instrument which is to be added,
 - 30 • place the instrument which is to be added on a level in the hierarchy of the system which is below said existing instrument,

- create a link between the instrument to be added and the existing instrument.

These three steps are also outlined in the accompanying flowchart in fig 5.

- 5 Fig 2 shows another feature of the invention: the inheriting of an attribute (from a higher level to a lower level in the hierarchy) is suitably made either optional, mandatory or excluded, i.e. prohibited. The “setting up” of which principle of inheritance that is to be used for each instrument and attribute within the system is suitably carried out by the operator of the system, in a manner which best suits each
- 10 instrument and the system as a whole.

- Naturally, all attributes can be made mandatory to inherit according to the principle of linkage explained previously, but the principle of fig 2 additionally enhances the ease of handling offered by the invention. As shown in fig 2, the template instrument
- 15 at the highest level in the hierarchy comprises six attributes, three of which are optional (shown vertically striped), two of which are mandatory (shown horizontally striped) and one of which is excluded from inheritance (diagonal stripes).

- Thus, the attributes, which were mandatory for inheritance to the next level, appear
- 20 in the instruments on the level below the highest level, and the attribute that was excluded from being inherited is also marked as excluded in the second level.

- However, the attributes which were optional from the first level to the second may have different properties of inheritance when going from the second level to the third
- 25 level in the hierarchy: this is indicated in fig 2 by virtue of the fact that in one of the instruments on the second level, one of the optional attributes is now marked as being excluded (diagonal stripes) when going to the next (third) level, and in the other instrument on the second level one of the optional attributes from the first level is marked as mandatory (horizontal stripes) for inheritance to the next level and one
- 30 is marked as excluded (diagonal stripes).

In fig 3, an example of the invention applied to real instruments is shown:

A group of instruments organized according to the invention comprises three levels: at the top level, there is an instrument template known as “Government bonds”. The exact attributes of that template will not be enumerated here, as they should be well known to those working in the field. However, one attribute, which Government
5 Bonds have, is that they generate an interest. In this particular case, interest can be generated in two ways, fixed or floating. Thus, at the top level, the template is provided with two attributes, one for fixed interest and one for floating interest.

On the next level, there are two templates, one for each of the more specific cases of
10 bonds, which have fixed interest rates, and bonds with floating interest rates. One of these templates will inherit the attribute “fixed interest” and the other template will inherit the attribute “floating rate”. This is done by means of both of the interest attributes (fixed and floating) at the top level being designated as optional for the next level, i.e. the second level.

15 Then, on the second level, in the template for fixed interest bonds the attribute for “floating interest” will be designated as excluded from the following levels, and in a corresponding manner the template for floating rate bonds will exclude the attribute “fixed interest” from the following levels.

20 Finally, one more feature of the invention should be pointed out. This additional feature is due to the fact that an attribute can not only have a characteristic property, for example, fixed or floating interest, an attribute can also have a value. By way of example, in the case of the attribute being “interest” the value would be the interest
25 rate.

In order to make a system according to the invention even more flexible and easy to organize, the inheriting of the value of an attribute from a higher level to a lower level can also be made mandatory or optional regardless of whether or not the
30 attribute as such was optional or mandatory to inherit. How a value is to be inherited would be set by, for example, the operator of the system.

The meaning of a value of an attribute being mandatory to inherit should be obvious, and will thus not be elaborated upon further here. In the case with optional inheritance of values, the function would be in the following manner:

- 5 If the inheritance of the attribute is mandatory and the inheritance of the value is optional, the instrument would then inherit a value as an example for the attribute (e.g. interest). A value needs to be set for the attribute in question since the attribute, i.e. the interest rate, is mandatory. The value could be either the inherited (“example”) value, or a new defined value. Naturally, other means of setting a value
- 10 should not be excluded; for example some kind of automated information retrieval system could be used.

- Likewise, if the inheritance of the interest attribute was optional, and that option was chosen, the interest would need to be set, which can suitably be done in the manner
- 15 just described.